

76.4. Finally, upon approval by the examiner, the section lines 4-4 will be deleted from FIG. 3.

In applicants' prior application claims corresponding to claim 1 as amended, and to claims 2-15 as originally presented were allowed on Nov. 17, 1999. During the prosecution of the above identified application Examiner Anjan Dey relied upon Hubert et al plus other references for the teaching of a pinch valve. It was pointed out that the other references only taught a pinch valve which could be moved between open and closed positions, and that there was no teaching of a pinch valve which could be varied. When claim 1 was amended in the manner set forth above it was allowed along with all of its dependant claims. Thus, it was pointed out that the prior art pinch valve has been operated in the past solely as an on/off valve, the rubber sleeve being pressurized to a fully closed position by factory air, or, when factory air is not being supplied, the valve being open. Applicant is using his valve in a novel manner, not taught by the prior art and to this end he has provided means to vary the diameter of the rubber sleeve between fully closed, fully open, and a plurality of intermediate positions so that the flow rate of the granular mold flux through the delivery tube may be varied.

The examiner has rejected claims 1, 3, and 6-10 as being unpatentable over Hubert et al in view of Mulder et al, which is cited for the use of a pinch valve. Thus, the examiner is

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essentially paraphrasing the prior rejections, but with differing art. It is believed that this grounds of rejection should be withdrawn for the reasons set forth above.

In addition, Michael Zinni, one of the inventors of this application has commented with respect to this rejection:

"The pneumatic pinch valve used by Mulder is controlled by a sensor and opens under the absence of powder in the container. The operation of the valve is open - close only (column 14, lines 19-30, column 17, lines 3-10). Pinch valves are designed for this type of operation and this application is not unique (fully open, fully closed). Our invention uses this valve uniquely by varying the valve opening to control the cross sectional area available for product flow (accomplished through controlling the pressure against the internal sleeve from a remote location.) This is the means of flow rate control to maintain a constant, steady flow of material to match consumption requirements. Open - closed operation of this valve (as described by Mulder) would send plugs of material through the feed lines and would be detrimental to the process, and also would feed the mold flux at an uncontrolled rate.

"The Hubert invention uses gravity feed and a two bin system to feed the flux into the continuous casting mold. In this invention, the sensors are used to determine 'batch' additions of intermediate hopper size for consumption values. Our sensor is used to activate and control vacuum system cycling to transport flux to an intermediate bin, not to determine level or usage. The use of the vacuum system to transport the material is has not been prior art and should be deemed unique.

"The examiner points out the obviousness of using the Hubert device with the pneumatic pinch valve of Mulder to maintain a predetermined level of powder in the container. This combination is not at all similar to the usage or operation of components discussed in our application, and should not be deemed prior art."

Clearly, as has already been recognized by the office, the combination of Hubert et al with prior art that merely teaches a valve which is either fully open or fully closed does not teach the subject matter of these claims. Accordingly the examiner is respectfully requested to withdraw this grounds of rejection, and to allow these claims in the absence of more relevant prior art.

In paragraph 12 the examiner rejects claims 2, 4, 5, and 11-18 as unpatentable over Hubert et al, Mulder et al and further in view of Kataoka. Mike Zinni comments as follows:

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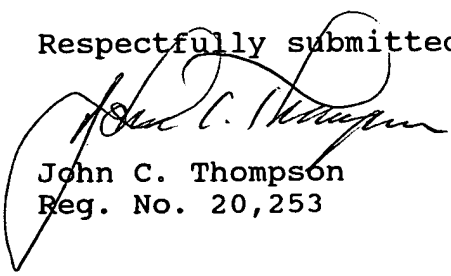
"The examiner refers to the following passages; column 2, lines 41-43, column 3, lines 22-27, and 38-46. Each of these refer to pressurizing the vessel to aid flow of the powder. This is not at all relevant to our pending application, because we are dealing with granular flux that does not need to be aided for gravity flow. The examiner also points to the valve control in the event of line blockage as prior art, and it is not relevant to our invention. Although not pointed out by the examiner, the Kataoka device uses a screw to maintain a feed rate of powder to the venturi device that transports the material by air to the mold. For our system, we control the flow through the use of the pinch valve-induction pump combination, or with the induction air pump alone. Both control principles are completely independent of the referenced patents (pinch valve control, induction vs. venturi) and should be viewed as unique."

For the reasons fully addressed by one of the inventors, the examiner is respectfully requested to withdraw this further grounds of rejection and to allow this application.

Attached hereto is a marked-up version of the changes made to the description, claims, and abstract by the current amendment. The attached pages are captioned Version with marking to show changes made.

As this application is now deemed to be in compliance with 35 USC 112, and free of the prior art, the allowance of this application is respectfully requested.

Respectfully submitted,



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enclosure:

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